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MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 1, 2017/2018

MAX2013 – 3D ANIMATION

(All sections / Groups)

14 OCTOBER 2017
2.30 p.m. - 4.30 p.m.
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This Question paper consists of 4 pages with 5 questions only.
2. Answer **FOUR** out of FIVE questions. All questions carry equal marks and the distribution of the marks for each question is given.
3. Please write all your answers in the Answer Booklet provided.

QUESTION 1 :

An efficient animator should be able to manipulate animation curves and keyframes within the graph editor, as well as make good use of animation layers.

a) The cycle setting in the Graph Editor repeats an animation curve as a copy infinitely. Explain the difference between a pre-infinity cycle and a post-infinity cycle within the Graph Editor.

(2 marks)

b) Give TWO examples of animation that has a repetitious or cyclical nature.

(2 marks)

c) Name a tangent type that forces a smooth curve to not go beyond the positions of its keyframes.

(2 marks)

d) List FOUR benefits of using animation layers.

(4 marks)

QUESTION 2 :

Deformers are used to manipulate the shape of geometry or drive animations.

a) The addition of jiggle deformers allows an animator to cause points on a surface or curve to shake as they move, speed up, or slow down. Jiggle deformers can be applied to specific points or to an entire object. Describe TWO examples of animation where jiggle deformers can be applied appropriately.

(2 marks)

b) Nonlinear deformers can be added to change or animate an object's shape. Give FOUR examples of nonlinear deformers and describe their effect when applied on an object.

(4 marks)

c) Chris plans to use a blendshape deformer to generate facial expressions for his character. At the moment, he only has the original base model of his character's head. Describe the next steps Chris needs to do in order to create at least ONE animatable expression for his character using blendshapes.

(4 marks)

Continued

QUESTION 3 :

a) Attributes between different objects can be linked together through constraints, the Connection Editor, or the Set Driven Key tool. Explain how these tools and techniques are different from each other, although they all serve the same function of linking attributes together.

(3 marks)

b) Name TWO different types of constraints which affect an object's rotational values.

(2 marks)

c) When an object's attribute is highlighted with a green mark in the channel box, what does that mean?

(2 marks)

d) Angie wants to create an effect where a ball of lightning is surrounded by multiple moving power sources. No matter how the power sources move, the position of the ball of lightning is always at the exact center of those objects. Describe how Angie can achieve that effect using constraints.

(3 marks)

QUESTION 4 :

When a model is bound to a skeleton using skinning, it then follows or reacts to the transformations of the skeleton's joints and bones.

a) Maya uses linear skinning to make a mesh follow a character's joints. However, this method can result in a 'bow tie' or 'candy wrapper' effect where the mesh loses volume as a bone twists on its axis. What skinning method is used to eliminate those undesirable deformation effects to maintain better volume?

(2 marks)

b) Maya offers several different bind methods for smooth skinning. Explain how 'closest distance' and 'heat map' are different from each other.

(4 marks)

c) Skinweights can be copied from higher-poly objects to lower-poly objects. Describe TWO examples of how copying skinweights can be used for a character's clothing, costume or accessories.

(4 marks)

Continued

QUESTION 5 :

a) When creating an Inverse Kinematics handle, an attribute can be enabled that makes the handle maintain its position in 3D space. This attribute is vital in helping a character exert force onto a surface or maintain contact. NAME this attribute and provide TWO examples of its use in a character animation.

(3 marks)

b) Bobby has created an object which requires multiple pivot points in order for it to animate properly. What should Bobby do to create more pivot points for the object?

(2 marks)

(c) Farah has finished modeling a complex character, and it is now ready to be rigged. What considerations does Farah need to take into account when determining where the joints should be placed?

(4 marks)

d) What happens to a joint's orientation when 'Freeze Transformations' is applied to it?

(1 mark)

End of Page.